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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,122	02/23/2001	Graham Murdoch	61229-00005USPX	5606

61060 7590 01/09/2008

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EXAMINER	
YUN, EUGENE	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
01/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/601,122	MURDOCH, GRAHAM	
	Examiner	Art Unit	
	Eugene Yun	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 37-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 37-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 43, 54-56, 73, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urbas et al. (US 5,481,262 "IDS") and Schuermann (US 5,374,930) and further in view of Seiko (JP 1-298817). .

Referring to Claim 1, Urbas teaches a transceiver including:

An antenna 4 and 11 (fig. 2) for receiving a first signal and transmitting a second signal;

A signal processor 7-10 (fig. 2) for receiving from the antenna a third signal indicative of the first signal; and

A modulator 6 (fig. 2) disposed between the antenna and the signal processor for providing a fourth signal to the antenna for forming the second signal.

Urbas does not teach a single antenna adapted for simultaneously receiving a first signal and transmitting a second signal. Schuermann teaches a single antenna adapted for simultaneously receiving a first signal and transmitting a second signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

The combination of Urbas and Schuermann does not teach the modulator varying the impedance between the antenna and the signal processor for providing the antenna with a dual Q factor, the Q factor being high for the first signal and low for the second signal. Seiko teaches the modulator varying the impedance between the antenna and the signal processor for providing the antenna with a dual Q factor, the Q factor being high for the first signal and low for the second signal (see fig. 1 and the title which clearly states that the Q-factor is set to low for transmission and high for reception). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Seiko to the modified device of Urbas and Schuermann in order to increase data rates.

Claim 73 has similar limitations as claim 1 with the exception of the antenna being a tuned coil in which the first signal generates a first current and which supports a second current for generating the second signal, which is taught by Schuermann (see col. 2, lines 39-45).

Claim 74 has similar limitations as claim 1 with the exception of the first and second signals modulated at a first frequency and a second frequency, respectively, the first and second frequencies being different to each other, which is taught by Schuermann (see col. 4, lines 22-24).

Referring to Claim 54, Urbas teaches an antenna 4 and 11 (fig. 2) for receiving and transmitting a first radiofrequency (RF) electromagnetic signal and a second RF electromagnetic signal respectively, the antenna including:

A tuned coil in which the first signal generates a first current and which supports a second current for generating said second signal (see COIL ASSY of 4 and 11 of fig. 2); and

A modulator 6 (fig. 2) disposed in series with the coil.

Urbas does not teach a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal. Schuermann teaches a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

The combination of Urbas and Schuermann does not teach said first and second currents flowing through said modulator for providing said coil with a simultaneous dual Q factor, the Q factor being high for the first current and low for the second current. Seiko teaches said first and second currents flowing through said modulator for providing said coil with a simultaneous dual Q factor, the Q factor being high for the first current and low for the second current (see fig. 1 and the title which clearly states that

the Q-factor is set to low for transmission and high for reception). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Seiko to the modified device of Urbas and Schuermann in order to increase data rates.

Referring to Claim 43, the combination of Urbas and Schuermann does not teach the modulator varying the impedance between the antenna and the signal processor, such that the antenna simultaneously has a high Q factor for signals received by the antenna and a low Q factor for signals transmitted from the antenna. Seiko teaches the modulator varying the impedance between the antenna and the signal processor, such that the antenna simultaneously has a high Q factor for signals received by the antenna and a low Q factor for signals transmitted from the antenna (see fig. 1 and the title which clearly states that the Q-factor is set to low for transmission and high for reception). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Seiko to the modified device of Urbas and Schuermann in order to increase data rates.

Referring to Claim 55, Urbas also teaches the first current or a signal derived from the first current provided to a signal processor 7-10 (fig. 2) whereby the modulator varies the impedance between the coil and the signal processor (see col. 7, lines 15-24).

Referring to Claim 56, Schuermann also teaches the impedance as a resistance which is switched between a predetermined value and negligible resistance (see col. 2, lines 56-59).

3. Claims 37-42, 44-53, and 57-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urbas in view of Schuermann. (US 5,451,958).

Referring to Claim 37, Urbas teaches a transceiver including:

An antenna 4 and 11 (fig. 2) for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

A signal processor 7-10 (fig. 2) for receiving from the antenna a third electrical signal based on the first RF electromagnetic signal; and

A modulator 6 (fig. 2) disposed in series between the antenna and the signal processor for providing a fourth electrical signal to the antenna to produce the second RF electromagnetic signal, the modulator varying the series impedance between the antenna and the signal processor (see col. 7, lines 15-24).

Urbas does not teach a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal. Schuermann teaches a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

Claim 49 has similar limitations to Claim 37.

Referring to Claim 50, Urbas teaches a passive transponder including:

An antenna 4 and 11 (fig. 2) for receiving and transmitting a first radio frequency (RF) electromagnetic signal and a second RF electromagnetic signal respectively;

A signal processor for: receiving a third electrical signal from the antenna which is derived from the first RF electromagnetic signal; and providing a fourth electrical signal derived from the third electrical signal (see 7-10 in fig. 2);

A power storage means in parallel with the signal processor for absorbing some of the power of the third electrical signal, the absorbed power being subsequently used by the transponder (see TRANSPONDER POWER and PROGRAMMING VOLTAGE in fig. 2);

A modulator 6 (fig. 2) disposed in series between the antenna and the power storage means for selectively varying the impedance therebetween to generate the second RF electromagnetic signal (see col. 7, lines 15-24); and

A mixer 10 (fig. 2) for producing a fifth signal by combining the fourth electrical signal with a sub-carrier, the fifth signal being provided to the modulator.

Urbas does not teach a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal.

Schuermann teaches a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

Referring to Claim 57, Urbas teaches a transceiver including:

An antenna 4 and 11 (fig. 2) for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

A signal processor 7-10 (fig. 2) for receiving from the antenna a third electrical signal indicative of the first signal;

A modulator 6 (fig. 2) disposed in series between the antenna and the signal processor for providing a fourth electrical signal to the antenna to produce the second signal, the modulator varying the voltage across the antenna in a substantially stepwise manner to effect a variation in the current flowing through the antenna between a low and a high value for allowing transmission of the second signal without substantially affecting the receiving efficiency of the antenna (see col. 7, lines 15-24).

Urbas does not teach a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal. Schuermann teaches a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

Claim 59 has similar limitations as Claim 57.

Referring to Claim 38, Urbas also teaches the transceiver as a transponder and the first and second signals modulated at a first frequency and second frequency respectively, the first and second frequencies being different from each other (see col. 7, lines 15-24).

Referring to Claim 39, Urbas also teaches a passive transponder and the signal processor means includes processing circuitry and power storage means, wherein some of the power provided by the third signal is stored in the power storage means for subsequently powering the transponder (see TRANSPONDER POWER and PROGRAMMING VOLTAGE in fig. 2).

Referring to Claim 40, Urbas also teaches the impedance varied between the high and low value at a rate greater than the DC slew rate for the third signal (see col. 7, lines 15-24).

Referring to Claim 44, Urbas also teaches the voltage across the antenna modulated or varied in a predetermined manner to generate the second signal 6 (fig. 2).

Referring to Claim 45, Urbas also teaches the modulation or variation in antenna voltage corresponding to a proportional variation in the antenna current (see col. 5, lines 60-66).

Referring to Claim 46, Urbas also teaches the modulator means varying a low impedance which is disposed in series between the antenna and the signal processor to cause a variation in the voltage across the antenna (see fig. 2).

Referring to Claim 47, Urbas also teaches the low impedance less than 10% of the total load impedance seen by the antenna (see col. 6, lines 2-11).

Referring to Claim 48, Urbas also teaches the impedance modulated with an RF sub-carrier and data modulated onto the sub-carrier for transmission (see col. 5, lines 60-66).

Referring to Claim 51, Urbas also teaches the modulator means varying the impedance in accordance with the fifth signal (see col. 7, lines 15-24).

Referring to Claim 58, Urbas also teaches the first signal including a carrier signal and the variation of the current between the low and the high value occuring within less than or about one period of the carrier signal (see col. 5, lines 15-22).

Referring to Claim 60, Urbas teaches a transceiver including:

An antenna 4 and 11 (fig. 2) for receiving a first radio frequency (RF) electromagnetic signal having a first predetermined frequency and, in response thereto, generating a second electrical signal;

Receiving circuitry being responsive to the second signal (see 7-10 of fig. 2); and

A modulator 6 (fig. 2) disposed in series between the antenna and the tuning circuitry for varying the impedance there between such that the second signal generates a third electrical signal in the antenna at a second predetermined frequency and the antenna transmits a fourth RF electromagnetic signal derived from the third signal (see col. 7, lines 15-24).

Urbas does not teach a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal.

Schuermann teaches a single antenna adapted for simultaneously receiving a first RF electromagnetic signal and transmitting a second RF electromagnetic signal (see the single antenna 10 in fig. 1 and col. 2, lines 22-24 noting that the term full-duplex means simultaneously receiving a first signal and transmitting a second signal) and tuning circuitry for providing the antenna with a resonant frequency at or about the first predetermined frequency (see col. 2, lines 18-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Schuermann to said device of Urbas in order to reduce interference while maintaining cost and size of the circuitry.

Referring to Claim 70, Urbas teaches a tuned antenna including:

A coil (see COIL ASSY of 4 and 11 of fig. 2) adapted for: receiving a first radio frequency (RF) electromagnetic signal having a first predetermined frequency; generating a second electrical signal;

A modulator 6 (fig. 2) disposed for providing a varying impedance such that the second signal generates the third electrical signal in the coil at a second predetermined frequency (see col. 7, lines 15-24).

Urbas does not teach receiving a third electrical signal, and transmitting a fourth electromagnetic signal derived from the third signal and a capacitor connected in parallel with the coil for providing the antenna with a resonant frequency at or about the first predetermined frequency. Schuermann teaches receiving a third electrical signal (see col. 2, lines 22-24), and transmitting a fourth electromagnetic signal derived from the third signal (see col. 2, lines 29-35) and a capacitor connected in parallel with the

coil for providing the antenna with a resonant frequency at or about the first predetermined frequency and the modulator disposed in series with the capacitor (see 10 and 12 of fig. 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Schuermann to said device of Urbas in order to increase data transfer rates while maintaining cost and size of the circuitry.

Claim 71 has similar limitations as Claim 60.

Claim 72 has similar limitations as Claim 70 except the limitation of wherein the coil receiving the first signal and the coil transmitting the fourth signal are the same coil, which is taught by Schuermann (see 10 in fig. 1).

Referring to Claims 41 and 52, Schuermann also teaches the impedance as a resistance which is switched between a predetermined value and a negligible resistance (see col. 2, lines 56-59).

Referring to Claims 42, 62 and 63, Schuermann also teaches the antenna as a coil 10 (fig. 1) tuned by a capacitor connected in parallel with the coil 12 (fig. 1).

Referring to Claim 53, Schuermann also teaches the power storage means including a capacitor 12 (fig. 1).

Referring to Claim 61, Urbas also teaches the first and second predetermined frequencies substantially different (see col. 7, lines 15-24).

Referring to Claim 64, Schuermann also teaches the modulator connected in series with the capacitor (see fig. 1).

Referring to Claim 65, Urbas also teaches the receiving circuitry, in response to the second signal, actuating the modulator to provide the third signal (see signal path to 6 of fig. 2).

Referring to Claim 66, Urbas also teaches the third signal modulated in accordance with a data signal specific to that transceiver (see 6 in fig. 2).

Referring to Claim 67, Urbas also teaches the data signal stored in the receiving circuitry 5 (fig. 2) and selectively provided to the modulator 6 (fig. 2).

Referring to Claim 68, Urbas also teaches the second signal as the current generated in the antenna by the first signal (see signal path from 4 to 5 to 6 in fig. 2).

Referring to Claim 69, Urbas also teaches the second signal as the voltage induced across the tuning circuitry by the first signal (see signal path from TRANSPONDER POWER to 5 to 6 in fig. 2).

Response to Arguments

4. Applicant's arguments filed 10/15/2007 have been fully considered but they are not persuasive.

Regarding Claim 1, the applicant argues that the Schuermann reference does not teach "a single antenna adapted for simultaneously receiving a first signal and transmitting a second signal". The applicant further argues that the single antenna is present in the interrogator, but not the transponder. The examiner points to figs. 2, 2a, and 2b of the Schuermann reference to clearly show that the transponders as well as the interrogator has a single antenna 10. The applicant also argues that neither the term

full or duplex is present in the Schuermann reference. The examiner points to the cited passage (more specifically col. 2, lines 20-21) which clearly states the term "full duplex transponders". Therefore, the applicant's arguments regarding the Schuermann reference are incorrect and the examiner maintains the Schuermann reference.

The applicant argues that the Seiko reference does not teach "the modulator varying the impedance between the antenna and the signal processor for providing the antenna with a dual Q factor, the Q factor being high for the first signal and low for the second signal". The applicant further argues that the Q-factor is supplied to the filters and not the antennas. While supplying the Q-factor to the filters is true for the Seiko reference, the examiner points out that the filters are part of radio equipment and deal with transmitted and received signals. Therefore, in addition to the filters, the antenna is also provided with the Q-factor which is high for the first signal and low for the second signal.

The response to the applicant's arguments for all other independent claims are similar to what is stated above.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Yun whose telephone number is (571) 272-7860. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571)272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER